

Supplementary Tables For:

"The Economic Cost of the American Civil War:  
Estimates and Implications"

(referred to as "Notes" in text)

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Table I

Price Index Used in Cost Calculations<sup>a</sup>

1839	120.43	1868	169.89
1849	88.17	1869	162.37
1856	112.90	1870	145.16
1857	119.35	1871	139.78
1858	100.00	1872	146.24
1859	102.15	1873	143.01
1860	100.00	1874	135.48
1861	95.70	1879	96.77
1862	111.83	1884	100.00
1863	143.01	1889	87.10
1864	207.53	1894	75.15
1865	198.92	1899	81.90
1866	187.10	1904	93.66
1867	174.19	1909	106.06

Source: Historical Statistics, p. 115.

<sup>a</sup>This price index is used in our calculations for the North and the South except during the war period where Lerner's price index is substituted for the Confederacy.

Notes: The price index given above is  $P_i = \frac{P'_i}{P'_{60}}$ , where

$P'_i$  = Warren-Pearson wholesale price index for all commodities in year  $i$ .

$P'_{60}$  = Warren-Pearson wholesale price index for all commodities in year 1860.

Table II  
Cost of Union "War" and "Navy"  
 (thous., \$)

Year	(1) War (Fiscal) (Current)	(2) (1860)	(3) Navy (Fiscal) (Current)	(4) (1860)	(5) War (Calendar) (1860)	(6) Navy (Calendar) (1860)
1861					187,526	20,546
1862	389,173	375,052	42,640	41,093	424,268	45,370
1863	603,314	473,485	63,261	49,648	433,693	49,274
1864	690,391	393,901	85,705	48,899	450,534	54,618
1865	1,030,690	507,167	122,617	60,336	253,584	30,168

Sources: Davis Rich Dewey, Financial History of the United States, 12th ed., (N.Y.: Longmans, Green & Co., 1939), p. 329; M. Slade Kendrick, "A Century and a Half of Federal Expenditures," NBER occasional paper #48, (N.Y.: NBER, 1955); Table I for price index.

Notes: Values are expressed in 1860 dollars using the price index from Table I and are adjusted to fiscal years by taking

$$P_{f,i} = \frac{P_{c,i-1} + P_{c,i}}{2}, \text{ where } P_f = \text{price index in fiscal year } i,$$

$P_{c,i}$  = price index in calendar year  $i$  as given in Table I. Values in current dollars are from Dewey, although the Kendrick figures yield nearly identical results. Expenditures are adjusted to calendar years by assuming equal expenditures in both the half year July to December and the following half year January to June.

Table III

Adjustments in Cost of Union "War" and "Navy"

(thous., 1860 \$)

	<u>1857/60 (Fiscal)</u>	<u>1870/73 (Fiscal)</u>	<u>Average Annual Increase</u>
Cost of "War"	19780	29836	3.212%
Cost of "Navy"	12408	14726	1.326%

Sources: Dewey, Financial History; Gallman, unpublished national income estimates.

## Notes:

- (1) If there had been no Civil War, expenditures on "War" and "Navy" would not have been zero. Hypothetical military expenditures in the absence of the Civil War are computed by assuming that expenditures would have increased at a constant rate between 1857/60 and 1870/73. Since the figures presented above are for the entire U.S., an additional adjustment is made to obtain hypothetical Union expenditures.
- (2) Data for 1857/60 in current dollars are from Dewey, p. 267. They are adjusted to 1860 dollars as in Table II. For 1870/73 the current dollar estimates are from Dewey, p. 399. The price index used to deflate is the calendar year price index adjusted to fiscal years by weighting according to Gallman's calendar year GNP estimates (Gallman, p. 5).

$$P_{f,i} = \frac{[GNP_{c,i-1} \cdot P_{c,i-1} + GNP_{c,i} \cdot P_{c,i}]}{[GNP_{c,i-1} + GNP_{c,i}]}$$

Symbols are defined in Table II.

Table IV

Direct Union Cost of Civil War, 1861-65

(thous., 1860 \$)

<u>Year (Calendar)</u>	<u>Hypothetical Cost</u>		<u>Net Cost</u>		<u>Total</u>
	<u>"War"</u>	<u>"Navy"</u>	<u>"War"</u>	<u>"Navy"</u>	
1861	7864	4668	179662	15878	195540
1862	16251	9469	408017	35901	443918
1863	16791	9605	416902	39669	456571
1864	17349	9743	433185	44875	478060
1865	8963	4942	244621	25226	269847
1861-65 <sup>a</sup>			1,493,343	142,775	1,636,118

<sup>a</sup>Costs are discounted to June 30, 1861 at 6 percent, and are assumed to have been incurred at the middle of each period. Costs in 1861 and 1865 are for the second half and the first half of that year respectively (e.g., values for 1861 are discounted by  $(1.06)^{\frac{1}{2}}$  and values for 1862 by 1.06).

Notes: Hypothetical costs are divided equally between the first and last halves of the calendar years. Per capita hypothetical war expenditures are assumed equal in both the North and South, so that, for example, the 1861 hypothetical cost figure is:

$$\left[ 19780 \times \frac{\text{Pop. North}}{\text{Pop. U.S.}} \times (1.03212)^3 \times .5 \right].$$

See Table III. The net cost is the total cost figure (Table II, cols. 5 and 6) less the hypothetical cost given above.

Table V

Cost of Union "War" and "Navy" After the Civil War

(thous., \$)

<u>Year</u>	(1) <u>"War" (Fiscal Year)</u> <u>(Current)</u>	(2) <u>(1860)</u>	(3) <u>"Navy" (Fiscal Year)</u> <u>(Current)</u>	(4) <u>(1860)</u>	(5) <u>"War"</u> <u>(Calendar Year)</u> <u>(1860)</u>	(6) <u>"Navy"</u> <u>(Calendar Year)</u> <u>(1860)</u>
1865					104,028	14,984
1866	283,154	146,704	43,285	22,426	69,032	16,032
1867	95,224	52,713	31,034	17,180	62,176	16,081
1868	123,246	71,638	25,775	14,982	59,446	13,510
1869	78,501	47,253	20,000	12,039	42,375	13,102
1870	57,655	37,497	21,780	14,165		

Sources: D. Dewey, Financial History..., p. 399. R. Gallman, unpublished national income statistics, June 1965.

Notes: See Table II. The price index used for 1870 is a GNP weighted average of the calendar year price indices. For 1866 to 1869 a simple average is used. The adjustment to calendar years in 1865 and the first half of 1866 is based on the assumption that expenditures fell at a constant rate each half year. E.g.: From Table II war costs are derived as having fallen by 60 percent each 6 months:  $(1+r)253584 + (1+r)^2 253584 = 146704$ ,  $r = -.60$ . For other years costs in fiscal years are divided equally between calendar years.

Table VI

Net Cost of Demobilization: 1865-1869

(thous., 1860 \$)

<u>Year (Calendar)</u>	<u>Hypothetical Cost</u>		<u>Net Cost</u>		<u>Total</u>
	<u>"War"</u>	<u>"Navy"</u>	<u>"War"</u>	<u>"Navy"</u>	
1865	12,340	6,804	91,688	8,180	99,868
1866	25,472	13,787	43,560	2,245	45,805
1867	26,290	13,970	35,886	2,111	37,997
1868	27,135	14,155	32,311	0	32,311
1869	28,006	14,343	14,369	0	14,369
1865-69 <sup>a</sup>			159,928	9,551	169,479

<sup>a</sup>Discounted at 6 percent to 1861. (The 1865 figure is for the last half of that year.)

**Notes:** See Table IV. All demobilization costs are assumed to have been born by the North. For this reason all hypothetical military expenditures are also applied to the North. It is assumed that the high military expenditures of 1865 to 1869 were also a result of the Civil War. Therefore, the net cost arising from this part of the Civil War is also included. This computation together with that in Table IV yields the following total direct cost to the Union:

\$1,636,118 (during the war)
169,479 (during demobilization)
<u>\$1,805,597 (thous. 1860 \$)</u>

Table VII

Expenditures by Union State and Local Governments

(thous. 1860 \$)

<u>Year</u>	<u>1861</u>	<u>1862</u>	<u>1863</u>	<u>1864</u>	<u>1865</u>
State and Local Expenditures (excluding bounties)	32,158	72,584	74,644	78,073	43,855

**Notes:** D. Dewey (p. 330) notes that "a large amount of state expenditure... finds no record in the books of the national treasury." Late in 1865 a bill was introduced, "to reimburse the loyal states for the advances they had made and debts contracted in support of the war." (Bolles, p. 245) The amount spent by the states and municipalities is given by Bolles as \$467,954,364. However, Bolles states that this figure does not include state and local bounties which must further be added. See Albert S. Bolles, The Financial History of the United States from 1861-1865, (New York: D. Appleton and Co., 1886) and Table VIII.

In order to obtain a discounted and deflated estimate it is assumed that the expenditure by state and local governments was distributed over time as that of the federal government. Figures are computed from Table II as follows:  $[(\text{Col. 5} + \text{Col. 6}) / (\sum \text{Col. 1} + \text{Col. 3})] \times \$467,954,364.$



Table VIII

Union State and Local Bounties

(thous., \$)

<u>Period</u>	<u>Federal Bounties (Current)</u>	<u>State and Local Bounties (Current)</u>	<u>Year</u>	<u>State and Local Bounties (1860 \$)</u>
May 61- Oct. 63	90,587	117,558	1861	33,313
Oct. 63- July 64	146,418	190,011	1862	42,762
July 64- April 65	63,219	82,041	1863	63,379
			1864	89,012
			1865	17,366

**Sources:** Fred A. Shannon, The Organization and Administration of the Union Army, 1861-1865, Vol. 2 (Cleveland: Arthur H. Clark Co., 1928), p. 80. Marvin A. Kriedberg and Merton G. Henry, History of Military Mobilization in the United States Army: 1774-1945, Dept. of the Army Pamphlet No. 20-212, (Dept. of the Army, June 1955), p. 106 and 109.

**Notes:** Shannon suggests that from the draft of 1863 (July) to the end of the war state and local governments paid "in excess" of \$286 million in the form of bounties. We therefore use this figure as a lower bound and assume that the ratio of state and local to federal bounties (in current dollars) was the same during each of the periods above. Bounties are assumed to have been equal in each month within these periods, (e.g., the 1861 figure can be obtained as follows:

$$\left[ 286,000 / (146,418 + 63,219 + \frac{3.5}{29.5} \times 90,587) \right] \times 90,587 \times \frac{8}{29.5} \times \frac{1}{.957} .$$

(The last number is 1/ 1861 price level.) This together with Table VII yield the following discounted figures:

		(1860 \$ in 1861)
Cost to State and Local Governments (excluding bounties): 1861-65	=	267,400
Cost to State and Local Governments of bounties: 1861-65	=	218,273
Total Cost: 1861-65	=	485,673

Table IX

Cost to Union Soldiers of the Draft

<u>Date of Draft</u>	<u>Number Drafted</u>	<u>Cost of Draft (thous. \$)</u>	
		<u>Current \$</u>	<u>1860 \$ in Year(s)</u>
July, 63	35,883	5,382	3,763 1863
March, 64	12,327	1,849	9,154 1864
July, 64	84,291	12,644	
Dec., 64	30,034	4,505	11,035 1861-65 <sup>a</sup>

<sup>a</sup>The 1861-65 figure is discounted to 1861.

Source: Kriedberg and Henry, History of Military Mobilization..., p. 113, for the number of men drafted.

Notes: Part of the war's cost was passed on by the draft to soldiers and to those who furnished substitutes. We have treated this cost as \$150 per person, whether the person actually served or furnished a substitute. (See Table 1, fn. d in text.)

Table X

Earnings and Labor Force Data for Table XI

Year	(1) Annual Earnings Non-Farm (1860 \$)	(2) Annual Earn- ings Farm (1860 \$)	(3) Proportion of Workers in Agriculture	(4) Avg. Annual Earnings (1860 \$)	(5) Consumer Price Index (1860=100)
1860	363.00	218.56	.529	286.59	100.00
1861	348.92	207.89	.529	274.32	106.04
1862	316.50	186.61	.528	247.92	121.01
1863	303.83	177.27	.528	237.01	151.07
1864	267.64	154.53	.527	208.03	189.06
1865	261.09	149.17	.527	202.11	196.10
1869	302.38	165.67	.525	230.61	164.03
1870	311.25	168.75	.525	236.44	157.11
1874	320.18	166.02	.520	240.02	137.11
1879	310.83	152.43	.514	229.41	120.00
1800	313.77	152.17	.513	230.87	123.02
1884	395.13	189.11	.477	296.86	116.10
1889	422.01	198.67	.434	325.08	116.10
1890	412.72	193.66	.427	319.18	115.09
1894	385.11	185.16	.416	301.93	109.06
1899	447.49	221.80	.403	356.54	105.03
1900	--	--	.402	--	--
1904	481.65	259.38	.364	400.74	111.70
1909	522.47	305.69	.322	452.67	114.84
1910	--	--	.314	--	--

## Table X (continued)

Source: S. Lebergott, Manpower in Economic Growth, (N.Y.: McGraw-Hill, 1964), p. 510, 528, 539, and 523.

Notes: The annual farm earnings figures are constructed by multiplying Lebergott's average monthly earnings data by (12 · 1 1/3). The last adjustment is to allow for board. Although the Lebergott data are available for only 1860, 1870, 1880, 1890, and 1899, estimates have been obtained for intermediate years by extrapolation using the non-farm series. For example:

$$\text{Column } (2)_{65} = \left[ \frac{(2)_{70}/(2)_{60}}{(1)_{70}/(1)_{60}} \right]^{5/10} \cdot \frac{(2)_{60}}{(1)_{60}} \cdot (1)_{65} .$$

Table XI

Human Capital Losses Due to Union Deaths

<u>Year</u>	(1) <u>Number Killed</u> <u>(thous.)</u>	(2) <u>Average Labor Force</u> <u>Participation Rate</u>	(3) <u>Earnings Lost by</u> <u>Premature Death Due to War</u> <u>(thous., 1860 \$)</u>
1861	60.04	.9315	9,378.1
1862	149.34	.9315	31,622.4
1863	237.51	.9315	48,079.1
1864	324.57	.9315	57,668.9
1865	350.50	.9315	60,503.9
1869	337.26	.9554	68,132.3
1874	320.17	.9526	67,121.8
1879	301.84	.9470	60,126.2
1884	281.55	.9309	71,340.3
1889	257.89	.9024	69,366.3
1894	229.63	.8779	55,809.0
1899	197.64	.8423	54,422.1
1904	163.57	.7773	45,665.9
1909	126.26	.5968	31,042.8

Sources: J.G. Randall and D. Donald, The Civil War and Reconstruction, (Lexington, Mass.: D.C. Heath and Co., 1969), p. 531; Historical Statistics, p. 307 and 738; Lebergott, Manpower..., p. 523.

Table XI (continued)

**Notes:** Column (1): Those killed from the North are assumed to have died at a constant rate from May 1861 to April 1865 but would have died, had the war not occurred, at the rate given by Massachusetts mortality statistics for the age group 20 to 29. After 1865 they are assumed to die at the rate given for veterans of the Civil War.

Column (2): The male labor force participation rate is adjusted by the age distribution of those killed. Labor force participation rate estimates for 1890 are applied to earlier years.

Column (3): The cost resulting from Civil War deaths is based on hypothetical future earnings of those killed. It is assumed that those killed would have received the average wage rate actually paid after the war had they not died. Increasing the labor force by the number of persons killed would have lowered average wage rates, however this impact would have been trivial. The number of persons expected to have been working in 1870 had the war not occurred is only 4.28% greater than the actual workforce; and it is 2.81% greater for 1880. (See Table XI and Historical Statistics, p. 72.) The method used in calculating the cost of human capital destruction is to multiply the expected wage rate of the group killed by the number expected to have survived to a given year. This is summed over all years. A weighted average of farm and non-farm wages was used. (See Table X.) We have adjusted for unemployment by using the Lebergott estimate of  $\frac{\text{annual earnings}}{\text{annual earnings when employed}}$  for non-farm workers, 1900 to 1909, and applying the average value of this ratio to earlier years.

Table XII

Annual Northern Earnings for Civilians and Soldiers:  
1861 to 1865

<u>Year</u>	(1860 \$)		
	(1) <u>Regular Army Pay</u>	(2) <u>Annual Civilian Earnings</u>	(3) <u>Difference to be made up by Bounties and the Draft (thous.)</u>
1861	222.35	274.32	1,926.4
1862	206.59	247.92	22,210.7
1863	165.49	237.01	66,105.9
1864	147.04	208.03	55,720.5
1865	151.96	202.11	16,074.7
1861-65 (discounted to 1861)			141,389.6

Sources: Kriedberg and Henry, History of Military Mobilization..., p. 110; M. Slade Kendrick, A Century and a Half of Federal Expenditures, NBER occasional Paper #48 (N.Y.: NBER, 1955), p. 95.

Notes: Column (1): Monthly pay of privates augmented by 1/3 to allow for board and by \$3.50 per month for a clothing allowance.

Column (3): Col. (2) - Col. (1) times the average strength of the army and navy in each year. The 1861 and 1865 figures are multiplied by  $\frac{8}{12}$  and  $\frac{4}{12}$  respectively, to allow for the actual duration of the war.

Since actual bounty payments totaled \$386,469.4 and the cost of the draft was \$11,035 (thous. 1860 \$ in 1861), \$256,114.8 (thous. 1860 \$ in 1861) can be considered risk premiums.

The average strength of the Union forces given by Kendrick is

1861	55,600	1864	913,600
1862	537,400	1865	961,600
1863	924,300		

Table XIII  
Reported Expenditures of the Confederate Government  
 (thous., 1860\$)

<u>Year</u>	<u>Loans</u>	<u>Treasury Notes</u>	<u>Taxes and Tariffs</u>	<u>Seizures and Donations</u>	<u>Total</u>
1861	149,083.2	272,955.2	1,320.0	2,000.0	425,358
1862	1,198.3	75,579.6	4,576.1		81,354
1863	23,877.0	51,498.1	6,705.7	19,341.3	101,422
1864	11,279.5	16,173.7	2,179.8	7,792.0	37,425
1865	313.5		86.0		400
1861-65 (discounted to 1861) <sup>a</sup>	-----				617,967

<sup>a</sup>A 6 percent rate of discount has been used.

Source: R. C. Todd, Confederate Finance, (Athens: University of Georgia Press, 1954).  
 Eugene M. Lerner, "Money, Prices, and Wages in the Confederacy, 1861 to 1865," in R. Andreano, editor, The Economic Impact of the American Civil War, for Lerner's price index which has been used above as a deflator.

Note: The relatively small expenditures after 1861 reflect, in part the military practice of paying less than the market price for goods. See text for a more complete description.



Table XIV

Rates of Natural Increase in the North and South

(per 1,000 average population)

	<u>1870-1880</u>	<u>1880-1890</u>	<u>1870-1900</u>	<u>1900-1910</u>
South	298.6	199.3	212.3	185.4
North	190.6	139.7	125.0	109.6

Source: H. T. Eldridge and D. S. Thomas, Population Redistribution, Vol. 3, p. 41, 242 and 245.

Notes: An adjustment is made to the figures on p. 41 of Population Redistribution to account for the fact that West Virginia, Kentucky, and Oklahoma were not part of the Confederacy.

Table XV

Bond Yields and Interest Earned, 1861 to 1909

<u>Years</u>	<u>Average Yield of American Railroad Bonds (percent)</u>	<u>Average Interest Earned by Life Insurance Companies (percent)</u>
1861-69	7.60	
1870-79	7.14	6.52 <sup>1</sup>
1880-89	4.95	5.46
1890-99	4.34	4.99
1900-09	4.00	4.68

<sup>1</sup>This figure refers to the subperiod 1872-79.

Source: Historical Statistics, p. 656 and 675.

A Note on Physical Capital Destruction in the South

We have measured physical capital destruction in the South as the difference between the value of (non-slave) capital in 1860 and that at the end of the war. The 1870 Federal Census reported the assessed value of real and personal estate in both 1860 and 1870 (1870 Census, Industry and Wealth, p. 10). But because assessed values were between 10% and 90% of market values (1870 Census, Industry and Wealth, p. 10), the Census also provided figures defined as "true" values, and we have based our estimate on these.

The value of slaves implied by the Census is given by Sellers at \$1,634,105,341. (See J. L. Sellers, "The Economic Incidence of the Civil War in the South," reprinted in R. Andreano, editor, The Economic Impact of the Civil War, p. 100.) The Sellers estimate is much too low (about 60% of the actual value of slave capital), but it is subtracted from the Census estimate of total southern capital because it is consistent with another Census estimate of non-slave capital (Census of 1870, Industry and Wealth, p. 8). See C. Goldin, "The Economic of Emancipation," Journal of Economic History, Vol. 33 (March 1973) for the estimate of slave capital. An additional, although minor, adjustment was performed on the census figure because the value of capital given for Virginia included West Virginia. We have assumed that the capital stock in Virginia fell by 30 percent (the average for the South from 1860 to 1870) but rose by 50 percent (the average for the North) in West Virginia (Sellers, p. 82). This implies that the ratio of capital in Virginia to West Virginia in 1860 was 2.14 times what it was in 1870.

The total value of capital in 1870 equalled \$2,738,689,037 in current dollars (1870 Census, Industry and Wealth, p. 10) and \$1,886,669,218 in 1860 dollars. We have deflated by the Warren-Pearson wholesale price index which was chosen because the reported value of capital is the present value, expressed in current dollars, of the expected stream of generated income. However, to the extent that expectations were not realized, there would be a difference between this figure and the ex post value.

In order to obtain a value for the capital stock in 1865, we assume that the capital stock per person increased between 1865 and 1870 at the same rate that it actually did between 1870 and 1880. The value of capital in 1880 was \$4,845,000,000 in current dollars (1880 Census, Valuation, Taxation and Public Indebtedness, p. 13) or \$4,505,700,000 in 1860 dollars. The implied rate of increase in the capital stock per capita from 1870 to 1880 is 7.033% per year, and since the southern population in 1865 numbered 9,771,200, the implied capital stock in 1865 is \$1,167,250,328 in 1860 dollars. Therefore, the decline in the value of the capital stock during the war is estimated at \$2,317,274,365 in 1860 dollars in 1865.

However, this figure almost certainly overstates the true loss. Because the 1870 Census underenumerated the southern population, it is likely that it also undervalued the southern capital stock. Furthermore, the 1870 census figure implies a rate of growth from 1870 to 1880 in the capital stock per capita which is over 50 percent higher than the northern rate of 4.14 percent (1880 Census, Valuation, Taxation and Public Indebtedness, p. 13), even though commodity output per capita grew at the

same rate (Engerman, "The Economic Impact of the Civil War," reprinted in R. Fogel and S. Engerman, The Reinterpretation of American Economic History, p. 372).

Therefore, in order to obtain a more reliable estimate, we have assumed that the rate of increase in the capital stock per capita between 1865 and 1880 in the South was equal to the rate achieved between 1870 and 1880 in the North. The implied value of the southern capital stock in 1865 is \$1,836,401,198 in 1860 dollars which means that the decline in the value of the capital stock during the war years was \$1,648,123,495 in 1860 dollars in 1865. Discounting<sup>to 1860</sup> is based on the assumption that the capital stock declined at a constant rate during the war.

This capital destruction figure, like the other components of our direct cost estimate for the South, is tentative. For example, the capital stock may have included some double-counting of real estate, (1870 Census, Industry and Wealth, pp. 5-8). Furthermore, our estimate does not take into account the possibility of negative net investment resulting from war expenditures and the additional possibility that such investment has been included in the other cost components. Although we are unable to assess the exact magnitude of these possible biases, they appear to be in the ~~direction of~~ overestimating the true capital loss. This tends to support our qualitative conclusion that the indirect cost to the South greatly exceeded the direct cost.